

Amendment

A list of pending claims follows:

1. (currently amended) A speed cooking oven for cooking a food product by hot gas and microwave energy, comprising:

an oven cavity having opposing sides;

at least one cooking rack;

means for launching hot gas into the oven cavity from said

opposing sides of the cavity;

at least one magnetron for generating microwaves;

at least two rectangular waveguides operably associated with the

at least one magnetron, at least one of the at least two

waveguides~~waveguide~~ having a proximal end near the magnetron, an opposing distal end, and a longitudinal waveguide axis;

at least one slot in each waveguide having a center point disposed along a longitudinal slot axis, the center point being located a selected distance from the distal end of the waveguide, the slot having a slot length along a said longitudinal slot axis that is less than 0.5 free space wavelength;

wherein the at least one slot in each waveguide is configured such that a substantially uniform microwave pattern is achieved without using a mechanical phase-altering device; and

wherein said waveguides are configured for launching microwave energy through respective slots and into the oven cavity from opposing sides of the cavity; and

wherein the oven is operable for launching hot gas into the oven cavity from said opposing sides of the cavity.

2. (previously presented) The speed cooking oven according to claim 1, wherein each slot is defined by a pair of elongated parallel sides connected at each end by semicircular ends, each slot having a vertical slot axis perpendicular to the longitudinal slot axis, such that the center point is located at the intersection of the longitudinal slot axis and the vertical slot axis.
3. (previously presented) The speed cooking oven according to claim 1, wherein each waveguide includes first, second, and third slots.
4. (original) The speed cooking oven according to claim 3, wherein the selected distance of the center point of the first slot opening is 0.5 of the waveguide wavelength.
5. (previously presented) The speed cooking oven according to claim 3, wherein each slot has a width between about 0.25 inches and 0.35 inches.

6. (previously presented) The speed cooking oven according to claim 5, wherein the first slot is inclined relative to the longitudinal waveguide axis, such that the end of the first slot closest to the distal end of the waveguide is higher than the other end of the first slot.
7. (original) The speed cooking oven according to claim 6, wherein the angle of incline of the first slot is between about 10 and 45 degrees.
8. (previously presented) The speed cooking oven according to claim 7, wherein the spacing between each slot is along the longitudinal waveguide axis 0.5 of the waveguide wavelength.
9. (original) The speed cooking oven according to claim 8, wherein the second slot is oriented at 90 degrees from the first slot.
10. (original) The speed cooking oven according to claim 9, wherein the third slot is oriented at 90 degrees from the second slot.
11. (previously presented) The speed cooking oven according to claim 10, wherein each longitudinal waveguide axis is located between about 0.5 and 2.0 inches above a corresponding cooking rack.

12. (previously presented) The speed cooking oven according to claim 1, further comprising:

a means for reducing interference between e-fields emitted through slots of said waveguides.

13. (previously presented) The speed cooking oven according to claim 12, wherein the means for reducing interference between e-fields is inwardly canted waveguides.

14. (previously presented) The speed cooking oven according to claim 12, wherein the means for reducing interference between e-fields is vertically offset waveguides.

15. (previously presented) The speed cooking oven according to claim 12, wherein the means for reducing interference between e-fields is slots in the waveguides that are offset along the longitudinal axes of the waveguides.

16. (original) The speed cooking oven according to claim 12, wherein the means for reducing interference between e-fields is a control system for selectively adjusting the power outputs of the magnetrons.

17. (currently amended) A speed cooking oven for cooking a food product by hot gas and microwave energy, comprising:

an oven cavity having opposing sides;

at least one cooking rack;

means for launching hot gas into the oven cavity from said

opposing sides of the cavity;

at least one magnetron for generating microwaves;

at least two rectangular waveguides operably associated with the

at least one magnetron, at least one of the at least two

waveguides waveguide having a proximal end near the magnetron, an

opposing distal end, and a longitudinal waveguide axis;

at least one slot in each waveguide having a center point disposed along a longitudinal slot axis, the center point being located a selected distance from the distal end of the waveguide; and

a thin, non-breakable slot cover for sealing the slots;

wherein the at least one slot is configured such that a substantially uniform microwave pattern is achieved without using a mechanical phase-altering device; and

wherein said waveguides are configured for launching microwave energy through respective slots and into the oven cavity from opposing sides of the cavity; and

wherein the oven is operable for launching hot gas into the oven cavity from said opposing sides of the cavity.

18. (original) The speed cooking oven according to claim 17, wherein slot cover is formed from polytetrafluoroethylene.

19. (original) The speed cooking oven according to claim 17, wherein slot cover is formed from a fiberglass material.

20. (original) The speed cooking oven according to claim 17, wherein slot cover is formed from mica sheets.

21. (original) The speed cooking oven according to claim 17, wherein slot cover is adhered to the waveguide by a silicone rubber material.

22. (currently amended) A speed cooking oven for cooking a food product by hot gas and microwave energy, comprising:

an oven cavity having opposing sides;

at least one cooking rack;

means for launching hot gas into the oven cavity from said

opposing sides of the cavity;

at least one magnetron for generating microwaves;

at least two opposing rectangular waveguides operably

associated with the magnetron, at least one of the at least two

~~waveguides~~waveguide having a proximal end near the magnetron, an opposing distal end, and a longitudinal waveguide axis;

at least one slot opening in each waveguide having a center point disposed along a longitudinal slot axis, the center point being located a selected distance from the distal end of the waveguide;

wherein the at least one slot is configured such that a substantially uniform microwave pattern is achieved without using a mechanical phase-altering device; and

wherein said waveguides are configured for launching microwave energy through respective slots and into the oven cavity from opposing sides of the cavity; and

~~wherein the oven is operable for launching hot gas into the oven cavity from said opposing sides of the cavity.~~

23. (original) The speed cooking oven according to claim 22, wherein the opposing waveguides are canted inwardly, so as to reduce interference between e-fields emitted through the slots of the opposing waveguides.

24. (original) The speed cooking oven according to claim 22, wherein the opposing waveguides are vertically offset, so as to reduce interference between e-fields emitted through the slots of the opposing waveguides.

25. (previously presented) The speed cooking oven according to claim 22, wherein the slots in opposing waveguides are offset along the longitudinal waveguide axes of the opposing waveguides, so as to reduce interference between e-fields emitted through the slots of the opposing waveguides.

26. (previously presented) The speed cooking oven according to claim 22, further comprising:

a control system for selectively adjusting the power outputs of the at least one magnetron.

27. (original) The speed cooking oven according to claim 22, further comprising:

a thin, non-breakable slot cover for sealing the slots of each waveguide.

28. (currently amended) A speed cooking oven for cooking a food product by hot gas and microwave energy, comprising:

an oven cavity having opposing sides;

at least one cooking rack;

means for launching hot gas into the oven cavity from said opposing sides of the cavity;

a single magnetron for generating microwaves;

at least two rectangular waveguides operably associated with the single magnetron, the waveguides having proximal ends near the magnetron, opposing distal ends, and longitudinal waveguide axes;

at least one slot in each waveguide having a center point disposed along a longitudinal slot axis, the center points being located selected distances from the distal ends of respective waveguides, the slots having slot lengths along respective longitudinal slot axes that are less than 0.5 free space wavelength;

wherein the at least one slot in each waveguide is configured such that a substantially uniform microwave pattern is achieved without using a mechanical phase-altering device; and

wherein said waveguides are configured for launching microwave energy through respective slots and into the oven cavity from opposing sides of the cavity; and

~~wherein the oven is operable for launching hot gas into the oven cavity from said opposing sides of the cavity.~~

29. (previously presented) A speed cooking oven as set forth in claim 1 further comprising a gas re-circulating system for re-circulating gas through said oven cavity.

30. (cancelled)

31. (previously presented) The speed cooking oven as set forth in claim 1 wherein the at least one slot is inclined relative to the longitudinal axis of the waveguide.

32. (previously presented) The speed cooking oven as set forth in claim 1 wherein the center point of said at least one slot is disposed along the longitudinal waveguide axis.

33. (previously presented) The speed cooking oven as set forth in claim 17 wherein the center point of said at least one slot is disposed along the longitudinal waveguide axis.

34. (previously presented) The speed cooking oven as set forth in claim 22 wherein the center point of said at least one slot is disposed along the longitudinal waveguide axis.

35. (previously presented) The speed cooking oven as set forth in claim 28 wherein the center point of said at least one slot is disposed along the longitudinal waveguide axis.

36. (previously presented) The speed cooking oven according to claim 3, wherein the selected distance of the center point of the first slot is 3.42 inches.

37. (previously presented) The speed cooking oven according to claim 7, wherein the spacing between the center points of the first, second and third slots along the longitudinal waveguide axis is approximately 3.42 inches.

38. (new) The speed cooking oven according to claim 1, wherein the hot gas launching means comprises first and second gas transfer sections.

39. (new) The speed cooking oven according to claim 38, wherein the hot gas launching means further comprises third and fourth gas transfer sections.

40. (new) The speed cooking oven according to claim 39, wherein the first gas transfer section is above the third gas transfer section, and the second gas transfer section is above the fourth gas transfer section, when the oven is upright.

41. (new) A speed cooking oven for cooking a food product by hot gas and microwave energy, comprising:

- an oven cavity having opposing sides;
- at least one cooking rack;
- means for launching hot gas into the oven cavity from said opposing sides of the cavity;
- at least one magnetron for generating microwaves;
- at least two rectangular waveguides operably associated with the at least one magnetron;
- at least one slot in each waveguide;
- wherein the at least one slot in each waveguide is configured such that a substantially uniform microwave pattern is achieved without using a mechanical phase-altering device; and
- wherein said waveguides are configured for launching microwave energy through respective slots and into the oven cavity from opposing sides of the cavity.